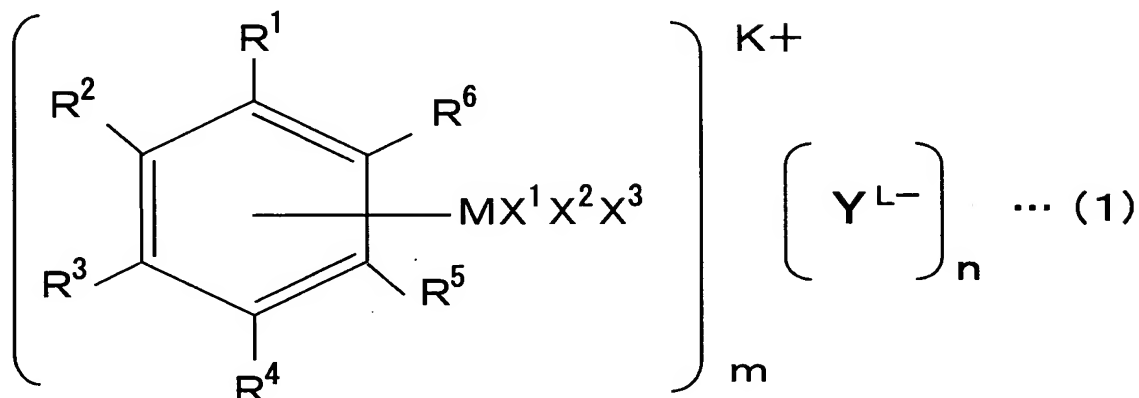


CLAIMS:

1. A reducing process of carbon dioxide, comprising mixing carbon dioxide and water with an organometallic complex represented by general formula (1)



where R¹, R², R³, R⁴, R⁵, and R⁶ independently represent a hydrogen atom or a lower alkyl group, M represents an element that can be coordinated to the benzene ring, X¹ and X² represent nitrogen-containing ligands, X³ represents a hydrogen atom, a carboxylic acid residue, or H₂O, X¹ and X² may be bonded to each other, Y represents an anion species, K represents a valency of a cation species, L represents a valency of an anion species, K and L independently represent 1 or 2, and K, m, L, and n are related to one another by K x m = L x n.

2. A reducing process of carbon dioxide as set forth in Claim 1, wherein, in the organometallic complex represented by general formula (1), M represents a group 8 element or a group 9 element of the periodic table.

3. A reducing process of carbon dioxide as set forth in Claim

2, wherein in the organometallic complex represented by general formula (1), M is Ru.

4. A reducing process of carbon dioxide as set forth in one of Claims 1, 2, and 3, wherein, in the organometallic complex represented by general formula (1), Y is one of a formate ion, a halide ion, a triflate ion, a sulfate ion, a perhalogen acid ion, a tetrafluoroborate ion, a hexafluorophosphoric acid ion, and a thiocyanate ion.

5. A reducing process of carbon dioxide as set forth in one of Claims 1 to 4, wherein, in the organometallic complex represented by general formula (1), the nitrogen-containing ligands represented by X¹ and X² are 4,4'-dimethoxy-2,2'-bipyridine.

6. A reducing process of carbon dioxide as set forth in one of Claims 1 to 5, wherein a pH of a reaction system mixing the organometallic complex, carbon dioxide, and water is 6 or below.

7. A reducing process of carbon dioxide as set forth in one of Claims 1 to 6, wherein, when reducing the carbon dioxide by mixing the organometallic complex, carbon dioxide, and water, the pH of the reaction system is changed.